GEOGRAPHIC SCHOOL BULLETINS

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FEBRUARY 1, 1960, VOLUME 38, NUMBER 16 . . . *To Know This World, Its Life*

JEAN AND FRANC SHOR, NATIONAL GEOGRAPHIC STAFF

FARMERS total 80 per cent of all Pakistanis. Many work with tools as archaic as these.

PAKISTAN also— *SNOW, NEWFOUNDLAND, GARGOYLES*

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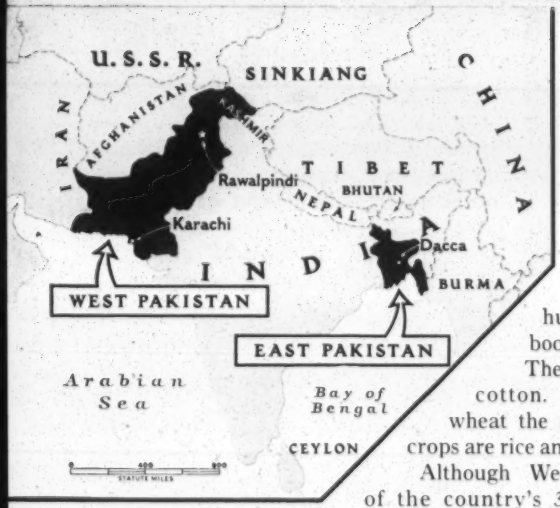

More than distance splits the two Pakistans. Westerners are tall, heavy, and fair. Easterners are short, slight, and dark. They eat different food—wheat in the West, rice in the East—and speak different languages—Urdu in the West, Bengali in the East. The Western villager lives in a mud and straw hut, the Eastern villager under bamboo and thatch.

The Western farmer grows wheat or cotton. In Swat, below, ox hoofs thresh wheat the age-old way. In the East the chief crops are rice and jute.

Although West Pakistan includes six sevenths of the country's 364,797 square miles, its deserts, mountains, and alluvial plains support less than half the nation's people. East Pakistan, with lush lowlands and river deltas, is one of the most thickly populated regions in the world, with averages rising in some places to 1,500 persons per square mile.

West Pakistan has an Arabian look as well as outlook. It presents a profile of camels, palm trees, and mosques. Much of it is desert. Scanty rainfall keeps it constantly under threat of famine.

On the other hand, East Pakistan has too much water. Annual monsoon winds

JEAN AND FRANC SHOR, NATIONAL GEOGRAPHIC STAFF, AUTHENTICATED NEWS, ABOVE

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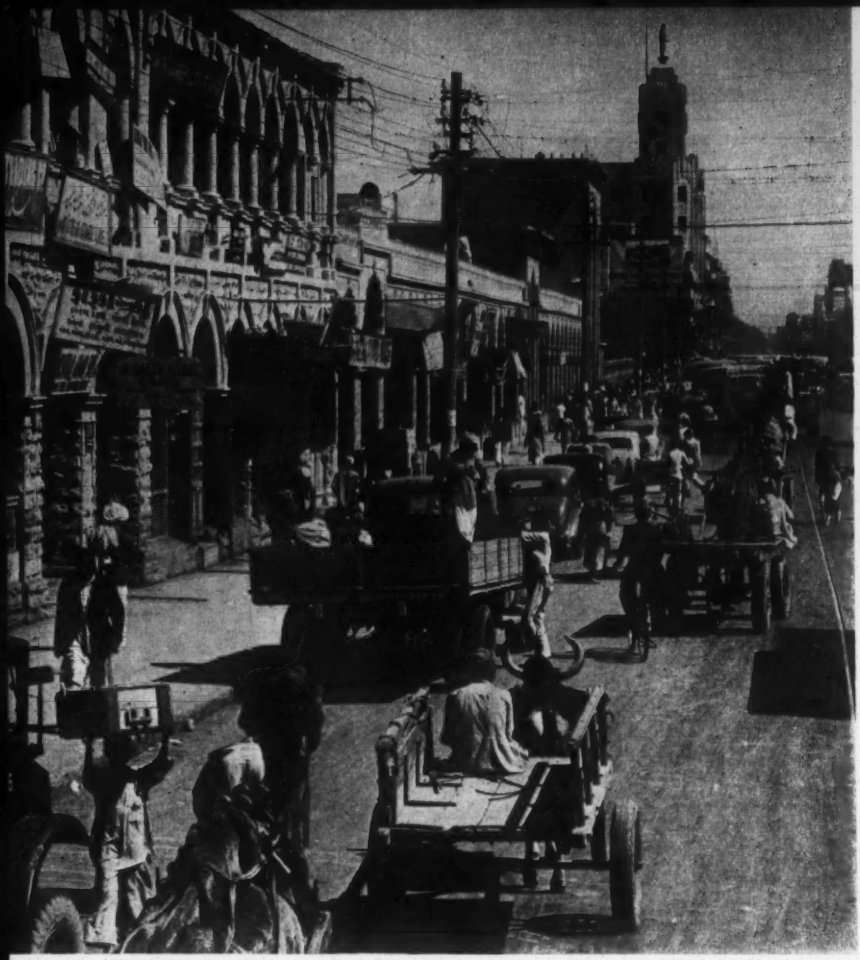

PAKISTAN The Moslem Religion Unites a Divided Land

PAKISTAN IS A NATION in two parts, hyphenated by almost 1,000 miles of India.

While one foot—East Pakistan—nudges Southeast Asia, the other—West Pakistan—toes the Arab World (see map below). The bond between the two sectors is religion: 88 per cent of Pakistan's 86,000,000 people are Moslems.

Pakistan was organized in 1947, when Great Britain was pulling out of India after three centuries of rule. Tensions had risen nearly to the point of civil war between India's two chief religious groups: Hindus and Moslems.

To head off bloodshed, the subcontinent of India was divided in three parts. Areas where Moslems were concentrated became West and East Pakistan. The Hindu regions became the Republic of India. Bustling Karachi, above, where camel carts jostle autos in traffic, was made Pakistan's capital. The government recently moved to Rawalpindi until a new capital in near-by Potwar is built.

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The Thal project in the Punjab, with its network of irrigation canals, is making the desert bloom. New buildings spot cities. With women working side by side with their men, a building goes up in Karachi, above.

Health, sanitation, education, and transportation are improving. The jeep, below, passes the elephant carrying a load of kindling in an East Pakistan village.

New factories turn out cigarettes, vegetable oils, matches, rubber tires, cement, and refined sugar.

At partition, East Pakistan got the jute fields, but India got the mills. Pakistan has since built its own mills. The worker at right combs the fiber. East Pakistan produces 70 per cent of the world's jute, used for burlap and twine.

East Pakistan had no adequate seaports at partition. Chittagong has been developed into a first-class port to export jute and tea.

Bamboo from forests near Chittagong is fed into a huge paper mill, large enough to meet the needs of the whole country.

In West Pakistan, many new cotton and woolen mills have been built—enough cloth and yarn are spun to allow export. Natural gas was discovered and a pipeline was laid to supply the growing industries. Oil wells in the Punjab are producing, and prospecting continues.

After the death of Mohammed Ali Jinnah, "the father of Pakistan," the country floundered amid political chaos until the government collapsed in 1958. General Mohammed Ayub Kahn, in a bloodless revolt, took over the country, abolished the constitution, suspended political parties, and called off the first national election, scheduled for February, 1959.

The general solved some problems: corruption in the government and black-marketing were attacked. But the toughest problems still exist: how to raise enough food and how to reverse the trend toward greater and greater poverty in overpopulated areas.

India and Pakistan still argue over Kashmir, an idyllic Himalayan state claimed by both.

Recently, however, talks between the two nations have led toward settlement of some of their differences. Boundary disputes and water rights to the Indus River system are being compromised. L.B.

PHOTOGRAPHS BY JEAN AND FRANC SHOR, NATIONAL GEOGRAPHIC STAFF

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bring drenching rain to rice paddy and jute field, depositing more than 100 inches a year. The rice farmer wades in water up to his knees to transplant his seedlings.

Pakistan, both East and West, is a country of villages and market towns. It takes fewer than ten fingers to count the cities in either section.

The average Pakistani farmer—and 80 per cent of Pakistan's people are farmers—has never traveled farther than the nearest market town, where he sells his produce and buys supplies. He lives in one of the numerous villages that count between 500 and 2,000 inhabitants. He may be a tenant farmer or he may own a small piece of land.

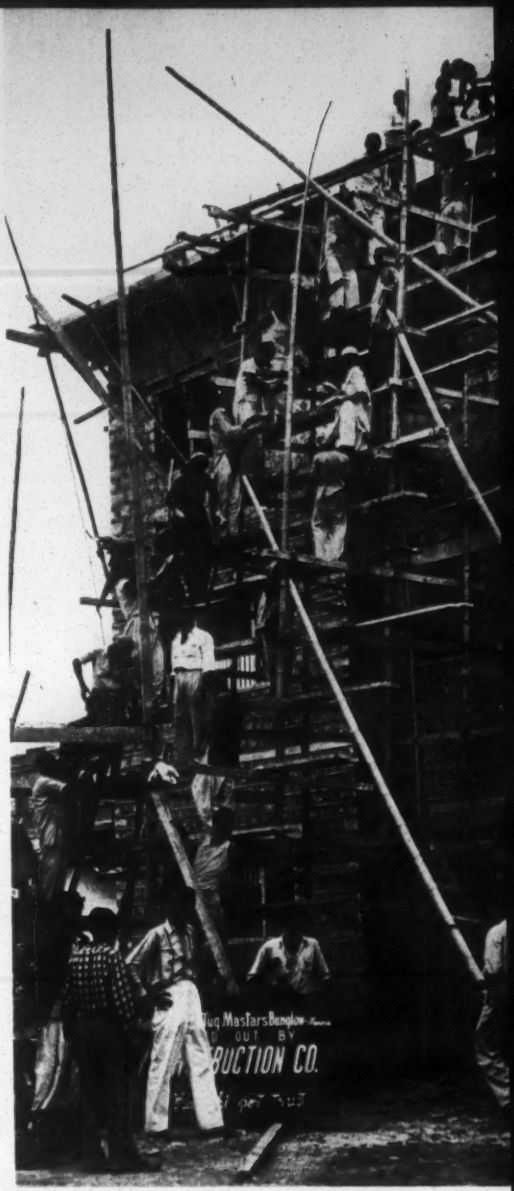
His village is a self-contained unit that usually includes a cobbler, weaver, blacksmith, potter, carpenter, post office, police station, and a shop or two where he can buy spices, oil for lamps, and simple tools. For anything more elaborate, he must go to town.

Electricity, hospitals, and schools are scarce. Kerosene and candles light the farmer's two- or three-room hut. Charcoal, wood, or dried cow-dung keeps his stove burning. Some villages boast dispensaries supported by wealthy landowners, but most villagers depend on herb medicines. Some children learn to read and write in the village mosque.

The farmer grows enough food for his own needs. His wife helps in the fields, and his children tend the cattle or sheep. At harvest time all the villagers pitch in to gather his crops, and he, in turn, helps them.

Few tractors can be seen in the fields. Fertilizers for better crops and chemical sprays to kill pests are scarce. The old man on the cover, a Punjab peasant farmer, displays the primitive tools of his trade.

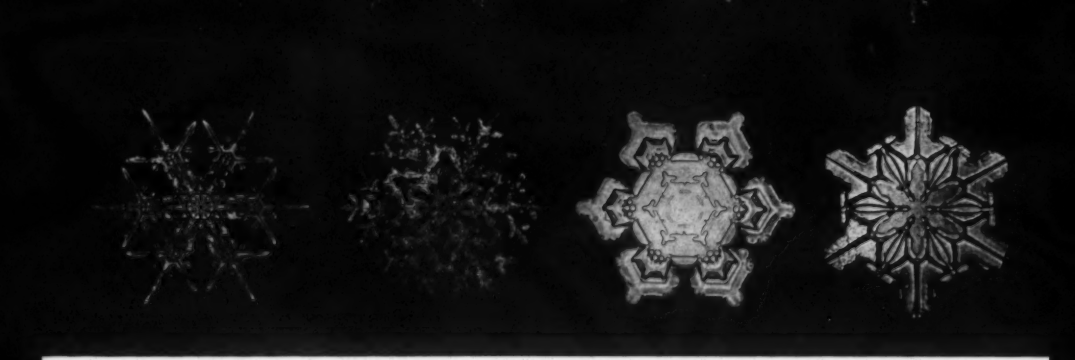
Progress is on its way in Pakistan, but slowly. At partition, the Moslems were mainly farmers. The flight of the Hindus left the electric plants, waterworks, railroads, industrial plants, and banks untended. The Moslems who crossed to Pakistan were also farmers, not the skilled workers who could replace the Hindus. Less than 10 per cent of the industry of British India was in the Pakistan portion.



AUTHENTICATED NEWS

The new government had nothing to build on—no money, no civil service, not even typewriters or paper clips.

Pakistan is not rich. It lacks coal and enough iron ore for heavy industry. However, it has some resources, and on these Pakistanis have been building a small industrial economy.



W. A. BENTLEY, SOIL CONSERVATION SERVICE, BELOW

work now enables us to deduce the condition of the upper air from the shape of the flakes that fall from it.

In cities snow is a costly nuisance. It clogs transportation, causes accidents, breaks down telephone lines, and isolates people. Digging out of just one snow storm cost New York $4,500,000.

But in the agricultural West, the stuff is fondly called "white gold." It provides the irrigation water and power that make farming possible. Each winter thousands of surveyors trudge through white drifts piled on the high Western mountains on a big snow job. Farmers and power companies need to know how much water is locked in the snow pack ready to flow out under the warmth of spring.

Since snow is sometimes light and fluffy and sometimes heavy and dense, the surveyors drive a hollow tube into the drifts (below), then weigh the core to determine how much water it holds. From repeated samplings, they can predict next summer's flow.

There is plenty of snow to measure. In the United States, the heaviest falls are in the mountains of the Pacific Northwest and California. A ranger station in Mount Rainier National Park, Washington, measured 83.4 *feet* of snow in the winter of 1955-56. The heaviest four-day fall blanketed Tahoe, California, with 108 inches in January, 1952. The Rocky Mountains are also great snow makers. Snow has fallen on Idaho in every month of the year. The greatest 24-hour fall known in the United States dumped 76 inches on Silver Lake, Colorado, in April, 1921.

Deep snows are not confined to the West. Every State, including Florida and Hawaii, gets some snow. During the winter of 1951-52, snow descended on Houghton, Michigan, for 52 consecutive days, piling up 118 inches.

At the South Pole, oddly, there is very little snow—the United States station there measured only two inches in a year. There is too little water vapor in the extremely cold polar air to produce heavy precipitation.

This is true also of Canada's polar regions. Aklavik, near the Arctic Sea coast, gets much less snow than Toronto. F.S.

•See also, in the *National Geographic*: "Sno-Cats Mechanize Oregon Snow Survey," November, 1949 ($1); "The Magic Beauty of Snow and Dew," January, 1923 (out of print).

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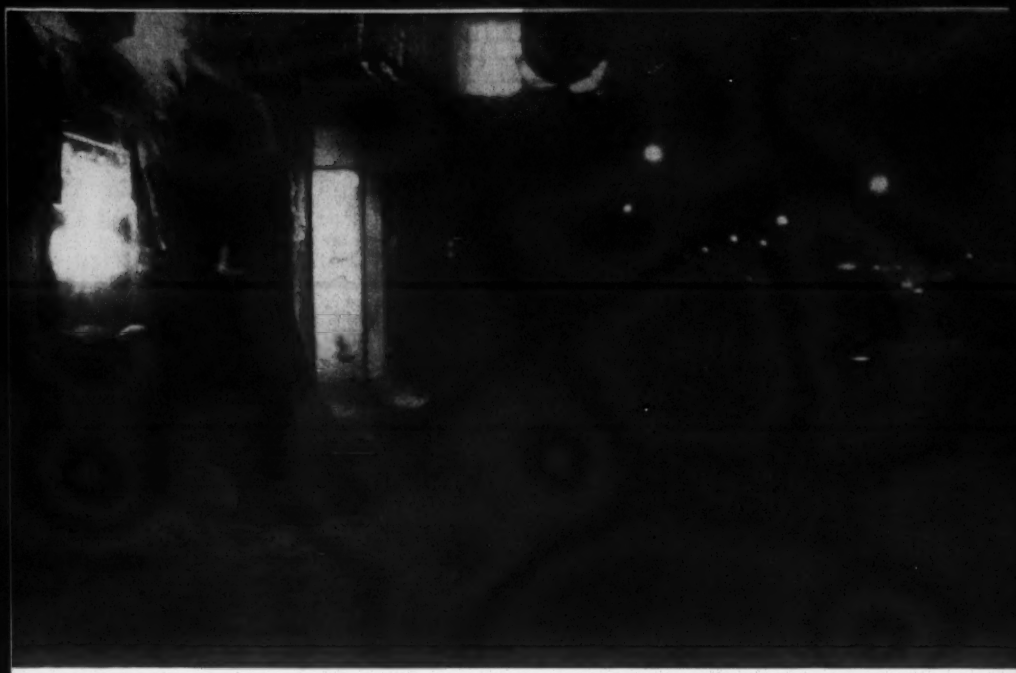

THOMAS J. ABERCROMBIE, NATIONAL GEOGRAPHIC STAFF

Snow Brings Both Trouble and Beauty

IN THE BRUTE POWER of a South Dakota blizzard and the delicate beauty of individual crystals, snow reveals a contradictory nature.

For example: it looks white—but it isn't white.

Snow is either a blessing or a curse depending on who and where you are. Some communities live on it; others spend millions to get rid of it. Even in a single family, opinions on snow may be diametrically opposed—the delighted anticipation of children clashing with the distaste of someone who must drive an automobile.

If you examine individual flakes under a magnifying glass, you will see that snow is simply ice, often arranged in complicated, regular patterns like those shown enlarged below. Like ice, each bit of snow is a sort of gray. How can a million gray things make up one white snow bank? The answer is in the crystals. They break up light into all the colors of the spectrum—which blend into white.

Apparently each snowflake is as individual as a fingerprint; no two have ever been found to be identical. Yet each is built on the same basic plan—the hexagon, or six-sided figure. This is due to the way water freezes, or crystallizes, in the clouds. Electric bonds holding together the molecules determine the shape of the crystals.

The exact form a snow crystal will take is determined by the temperature and moisture conditions of the cloud where it was born. After years of patient labor, scientists have been able to create artificial snowflakes in the laboratory. Their

"Well, it's another Labradull day." Cozy fishing villages like the one below nestling in Bonavista Bay are the sole softeners of the bleak coastline.

Tied to Britain since 1583, Newfoundland chose to join Canada in 1948, after a period of financial difficulty. Since then, industrial development has been a main objective of the government.

Behind the deep coves and harbors of the island, forests march through broad river valleys. Loggers wielding steel-tipped poles break up jams on rushing brooks as pulpwood floats to giant paper mills at Grand Falls and Corner Brook. Newsprint is shipped to presses in New York, Washington, or Buenos Aires.

Miners work rich iron veins which run out for several miles under the ocean. Inland, others dig lead, copper, and zinc. Fluorspar, used in making aluminum, is mined on the Burin Peninsula. Asbestos mines are being dug.

Although ocean-spanning missiles may one day erase Newfoundland's strategic prominence, the province is at the moment a bastion of North American defense. Three United States military bases are on the island and one in Labrador.

When a plane from New York lands at Gander airport, it has already traveled one-third of the distance to Europe. Hence, the airport has become a jumping-off-place for transatlantic flights.

To the north of Newfoundland Island, across the Strait of Belle Isle, lies the other section of the province: Labrador. Although Europeans probably made their first New World landfall here, its barren coasts repelled settlers. Today, only about 5,000 people, including about 800 Eskimos and several Indian tribes, live in Labrador. Cod is king in Labrador as well as on the Island.

Behind its bleak coast, Labrador's tree-covered hills splotched by lakes and rivers, await man's searching hand. Its forests constitute one of the world's largest remaining stands of virgin timber.

Its rocks echo the ping of the geologist's pick as mineral prospecting uncovers hidden wealth.

Iron ore—at the rate of 12,000,000 tons a year—is already being mined from a belt that straddles the Labrador-Quebec border. Other deposits are being developed. Uranium lies untouched.

Water power awaits harnessing. Grand Falls—second in volume in North America only to Niagara—may be able to spin out about three-fifths as much hydroelectric energy as all Canada now produces.

L.B.

NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL; E. FRED MILLER, ABOVE

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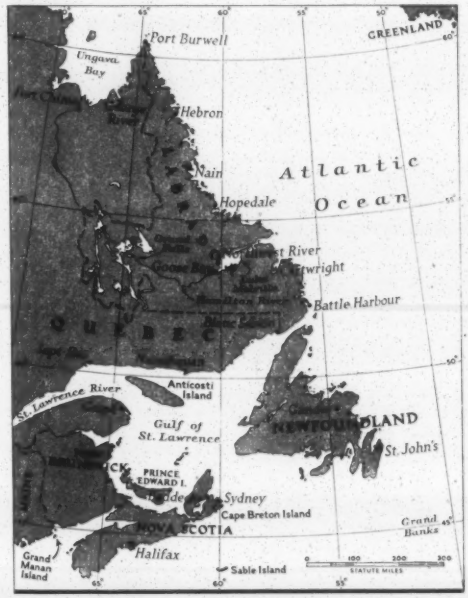
Newfoundland

THE SPORTSMAN may need 15 minutes to catch his first fish in Newfoundland. The professional pulls in a cod every few minutes. In this easternmost province of Canada, fishing is serious business.

When the big brown-backed yellow-eyed cod are "running plenty," men work day and night to reap the harvest.

In small boats, many of them homemade, fishermen put to sea, hauling back heavy net-loads. Others, like the hardy fellow at left tossing his catch, "jig" or hook their fish. Schooners sail for the near-by Grand Banks, a submarine shelf where fish gather.

The prosperity of the province depends on these men. After the cleaning, salting, and culling, the cod fill white Newfoundland-made barrels headed for Italy, Portugal, Greece, Brazil, the West Indies, and the United States. From Newfoundland's quick-freezing plants, frozen fillets of cod, haddock, and halibut go out to London and Chicago housewives.



It was seafood, including herring, salmon, lobster, mackerel, flounder, sole, catfish, smelts, and scallops, that first lured European explorers to Newfoundland. Indeed, there was little else to attract them.

Forbidding, rocky coasts jutting from the Atlantic discouraged settlement. John Cabot discovered the island in 1497 and claimed it for England, but it was 350 years before Newfoundland was much more than a fishing station. Before permanent settlement, it was governed by the "fishing admirals"—the first fishermen to arrive from Europe for the spring season.

Even today, although the province is nearly twice the size of Great Britain, Newfoundland holds only as many people as Bristol, England—some 440,000. The province includes Labrador on the Canadian mainland.

Today's Newfoundland, however, boasts much that could entice settlers. True, its damp North Atlantic air is no warmer than it ever was. Fog continues to sweep in over the water. This, coupled with strong currents, makes the coast treacherous. Rain may soak it for weeks at a time—a fact which inspired one American canoeist in Labrador to greet his companions every morning with:

WASHINGTON CATHEDRAL

the ruins of Pompeii. In the Middle Ages the fantastic creatures came to roost on all churches and palaces of any importance.

Fish have always been popular with gargoyle designers. The one above adorns the Washington Cathedral (Episcopal). Unlucky the pedestrian who walks under his mouth on a rainy day.

The graceful gargoyles of Milan Cathedral,

THE NEW YORK TIMES; BRUNO STEFANI, LEFT

left, which were designed along with the statues of the building, became some of its most vivid ornaments.

Bizarre beasts peer balefully from many modern buildings as well. The fierce bird above glares into space from the Chrysler Building in New York.

If you would like to take your imagination in hand and design a gargoyle or two, there is a ready market.

The Washington (D.C.) Cathedral is in need of 30 more gargoyles to complete its Gothic exterior. There is no pay or prize, except the satisfaction of someday walking up to the Cathedral and discovering your own creation among the parapets and buttresses of the great church. K.C.

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DONALD MCLEISH

Gargoyles

Weird beasts glower over Paris from Notre Dame Cathedral, inspire imitations around the world.

High above the roofs of Paris lurk the grotesque gargoyles of Notre Dame. Sprouting from medieval towers and parapets of the cathedral, these monsters are relics of pagan spirits who, legend says, worked much mischief in ancient Paris. When they were finally captured by the Church, they were chained to its towers to brood forever over the city.

The word "gargoyle" comes from the old French word for throat. A gargoyle was originally a spout which stuck out several feet to lead rain water from a building. Now the word means any carving of whimsical bird, beast, fish, or even human used as an architectural adornment.

The Greeks and Romans may have been the first to use gargoyles, in the forms of lions' heads and griffins. Terra cotta gargoyles can be seen in

192

DONALD McLEISH

Gargoyles on the Cathedral of Notre Dame were designed to remind passers-by of the Devil's constant threat. They represent evil passions driven from men by religion.

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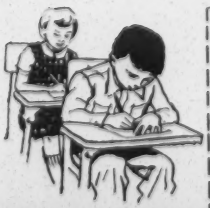

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